

LITTLE BLUE BOOK NO. **411**  
Edited by E. Haldeman-Julius

# What You Should Know About Phrenology

Leo Markun



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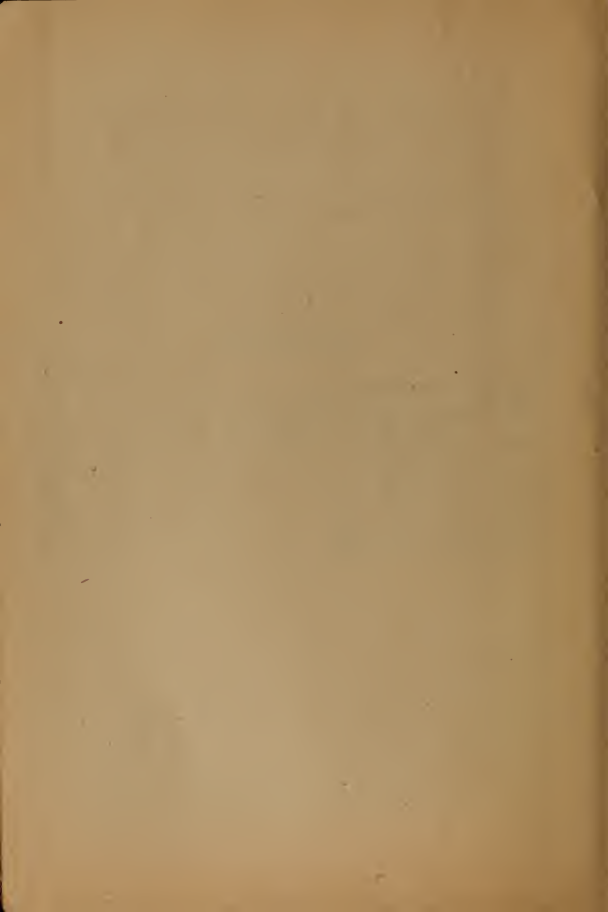
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# WHAT YOU SHOULD KNOW ABOUT PHRENOLOGY

## HISTORICAL INTRODUCTION

Phrenology (from the Greek words *phren*, the diaphragm of the body, the heart, the mind, and *logos*, word or discourse) is the name which Thomas Ignatius Forster gave in 1815 to a psychological system which had been founded by Gall and developed by his followers, especially Spurzheim and George Combe. This ambitious name succeeded the more modest one of *Schädellehre*, that is, the study of the skull, rendered usually in English by "cranioscopy" or "craniology." The pseudo-science which was built upon Gall's hypothesis that mental and moral faculties are shown by the development of the skull was also known as "physiognomy" and "zoönomy." By psysiognomy we now understand the attempt to read character from the facial features rather than from the top and back of the head. The word "zoönomy" signifies the law of life, and it indicated an attempt to found a new zoölogy.

George Combe speaks of phrenology as "a system of Philosophy of the Human Mind, founded on the physiology of the brain." We have just seen that the Greek word for the mind meant also and primarily the midriff or the heart. This suggests the fact that mental activity has not always been attributed to the

brain or to the head. When we say that a man has brains, we mean, of course, that he is intelligent. We contrast the head and the heart, reason and the emotions, although this is no longer considered good physiology. The Bible makes the heart the seat of all intellectual activity. "The heart knows his own bitterness," we find in the Book of Psalms. At the end of the eighteenth century, some writers still denied that the mental processes are chiefly localized within the skull.

Accurate physiological psychology is chiefly the work of our own times, and much work still remains for the next few generations. The Babylonians considered the liver the organ of thought and emotion. The Hebrews were certain that life and thought came from the heart. They also localized certain mental functions in the bowels and the kidneys. Plato thought that the marrow of the bones binds together body and soul. He believed, however, that the marrow which is in the brains is most important. Aristotle found himself unable to agree with his fellow-philosopher. Examining brains, he found them cool and apparently of no great importance. He came to the conclusion, therefore, that the skull is a refrigerator, cooling off hot blood and then returning it to the heart. To the early physiologists, the fact that loss of blood may bring weakness and then unconsciousness suggested that life and thought are in this fluid. It was easy for them to deduce that the heart is therefore the most important mental organ.

But Pythagoras attributed intellect to the



brain. Hippocrates was inclined to take the same point of view, although he played with the idea that the heart may be the seat of the soul. A certain Pythagorean, Alcmaeon of Crotona, guessed that the nerves and the brain are important for the mental processes of man. Some Alexandrian physiologists even attributed definite functions to various parts of the brain. Then Galen expressed the opinion that the brain is the organ of the soul and the intellect.

Aretaeus of Cappadocia learned that the nerves cross below the brain, so that injuries in the right hemisphere of the brain cause paralysis on the left side of the body. Albertus Magnus, in the thirteenth century, declared that the front part of the head is the seat of judgment, while the middle is given over to imagination and the rear to memory. A number of other medieval writers expressed somewhat similar views. The Arabic physicians Averroes and Rhazes divided the brain area into four organs, each with a special mental faculty.

Of modern physiologists, Unzer of Halle, Metzger, and Prochaska of Vienna prepared the way for phrenology. Especially important is Prochaska's book, published in 1784. But Franz Joseph Gall (1758-1828) usually receives the credit or the blame for the origination of the phrenological system.

Gall always insisted upon the originality of his system. He declared that he began to work it out when he was a boy of nine. His family was a large one, and he had ample opportunity

to observe that brothers and sisters brought up together develop in somewhat different ways. One child had an excellent handwriting, one was quick at arithmetic, another learned languages easily, and one brother remembered all the history he read without difficulty. Their interests were in many ways different. One was fond of books, another of rough sports, a third one liked to walk about in the garden, and so on. Presently he was wondering what caused these individual differences.

At school, Franz Joseph found these variations still more striking. Not only did some children appear to be brighter than others, but there were some who were proficient in memorizing dates, others wrote good compositions, even though they might have other difficulties with their lessons. The boy envied those of his schoolmates who had better memories than he. It seemed to him that those who remembered well had all large and prominent eyes. When he went to Strassburg to study medicine, he had still more reason to envy and to observe the young men who had no difficulty in retaining facts. Moreover, they were still people with large and prominent eyes. So he declared later, at any rate.

But he did not stop with this generalization. He believed that he had discovered external indications of special talents for mechanics and the various fine arts. He began to study the question of individual variations as well as he knew how, dissecting horses and dogs and birds as well as human corpses. It appears that his attitude was always that of a scientific investi-

gator. He bought a great many skulls, preferring those which came from individuals of known history. He studied people whom he knew to be conspicuous for the possession or the lack of various qualities. Why was one man musical and another tone-deaf? Perhaps their skulls showed different forms of development.

For it was the brain which interested him most, and he thought that a cranial examination would enable him to tell which mental traits were strong and which were weak. But first it was necessary to make many examinations. He had no definite data to work with except as he observed and took notes for himself. It had long been held that the cerebrum is the organ of perception and the cerebellum that of memory. But even this did not appear to be certain. In his medical studies he had become familiar with many physiological facts. He had learned the functions of the liver and the kidneys and other organs. His teachers did not seem to know much about the brain, though.

Franz Joseph Gall decided that he would discover the compartments of the brain as manifested in protuberances or "bumps" on the head. He took pains to investigate the physical, mental, and moral qualities of men and women who had unusually-shaped heads or protuberances of a special kind. He experimented with the boys of Vienna, even provoking quarrels among them so that he might learn what sort of skull goes with fighting tendencies and courage. The Vienna minister of

police helped him to study living criminals and to examine the skulls of those who had been executed. Gall made many plaster casts of remarkable heads.

He was unmarried, and therefore his medical practice afforded him money enough to carry on his investigations with great zeal. He was so anxious to get skulls that elderly people began to feel worried. We are told that Denis, the emperor's librarian, put a clause into his will expressly forbidding his executors to deliver his skull to Gall for study. The enthusiast was interested not only in human craniums, but also in those of various animals. He conducted himself like a serious scientific investigator, and he thought that he was founding a new and important branch of knowledge.

As physician at an asylum for the deaf and dumb, he had good opportunity to examine the heads of many persons of the lower classes, some of them of inferior mentality. He called in coachmen and beggars to have their brain-pans investigated. Criminals of various sorts, lunatics, and idiots were studied with special care.

As a result of all his empirical investigations, he came to the conclusion that some of his first guesses were wrong. But the system which he finally worked out seemed to him to be pretty accurate. Every point had been carefully checked. If he thought that a certain bump stood for good nature, this was because he had found fifty or a hundred good-natured people who possessed it.

Only after he had given a great deal of his

time, energy, and money to the study of brains, skulls, and heads did he start to spread his views. It was in 1796 that he began to give lectures in Vienna. At first he attracted only a few pupils, and he can hardly be said to have made his doctrines public until 1798, when Wieland published in his *Deutscher Mercur* an outline of craniology in the form of a letter from Gall to a friend. The number of attendants at the lectures slowly increased, but comparatively few people out of Austria knew anything about Gall and his study of cranial protuberances.

In 1802, however, the Austrian authorities, acting at the instance of the Catholic priests, forbade Gall to continue his lectures. The attempt to give a material habitation to the mind (and the soul) was denounced as atheistic. It is true that Albertus Magnus, who was a respected theologian, had dealt with this very problem long before. But in many ways the Catholic Church was less tolerant in the eighteenth and nineteenth centuries than it had been in the middle ages. A number of foreigners living in Vienna protested against the order, and Gall was finally permitted to lecture to them. But as for Austrian subjects, they were not allowed to hear him expound his views. They were best left in ignorance, the authorities believed.

This limitation quickly made Gall a European figure. Many foreigners who would otherwise have manifested no interest in his brainpans hurried to take advantage of their special opportunity. When they returned home,

some of them became enthusiastic reporters of the new "science." In 1804 J. K. Spurzheim (1776-1832) became Gall's associate. At first they worked together harmoniously, and when Gall made a tour through Germany, in 1805, he took Spurzheim with him.

Gall lectured in Berlin, Magdeburg, Dresden, and other university cities. Considerable interest was displayed not only by the uncritical public but also by the scientists. The lectures were interesting and they proved to be convincing to a great many more or less intelligent people. Gall had won considerable fame by the time he settled in Paris, 1807. There he engaged in medical practice at the same time that he continued his studies and his lectures. In 1808 was published his *Introduction to a Course in the Physiology of the Brain*, written in French. *Investigations on the Nervous System in General and on That of the Brain in Particular* came out the next year, with Gall and Spurzheim as the authors. The two men worked together on a large treatise dealing with the anatomy and physiology of the nervous system, of which the first part appeared in 1810. Spurzheim left him three years later, and he was presently reproaching his teacher for not having devised some of his conclusions. Gall tried to become a member of the French Academy of Science in 1821, and he obtained the assistance of Geoffroy St. Hilaire, but he was nevertheless defeated.

It was Spurzheim who spread the study of phrenology through Great Britain and the United States. George Combe, too, gained

many converts. Both these men revised Gall's system. The originator of cranioscopy had picked out twenty-seven spots on the skull and declared that each one indicated a certain mental quality. The new phrenologists, however, were sure that every bit of space on the head is important. They mapped out the whole surface, dividing it into thirty-five parts.

Gall's names for the mental faculties, originally given in French and German, are as follows:

1. The instinct of reproduction.
2. Love of children.
3. Friendship.
4. The instinct of self-defense.
5. The destructive instinct.
6. Finesse, tact, diplomacy.
7. Sentiment of property.
8. Pride.
9. Vanity and ambition.
10. Caution.
11. Memory, educability.
12. Sense of space and locality.
13. Memory for persons.
14. Verbal memory.
15. Philological talent, capacity for learning languages.
16. Sense of color.
17. Musical talent.
18. Sense of number.
19. Architectural and mechanical talent.
20. Sagacity in making comparisons.
21. Metaphysical ability.
22. Wit.
23. Poetical talent.



24. Benevolence, sympathy, kindness.
25. Mimicry.
26. Religious sentiment.
27. Constancy and perseverance.

Spurzheim and Combe's list of thirty-five faculties is the most familiar one. Fowler increased the number to forty-three. I have translated Gall's list not only because it varies somewhat from those of his pupils, but also because the phrenological terms usually employed in English are mostly long and Latinized. What is "love of children" in the preceding list we shall presently deal with as "philoprogenitiveness." Here we can see clearly what Gall taught, that one compartment or special organ of the brain produces religious sentiment while a second is the seat of musical talent and still another makes meta-physical skill. The examining of "bumps" is but an incidental matter.

Gall and Spurzheim were convinced that the qualities of men are innate. They did not deny the importance of education, but thought that an individual who starts out in life without the faculty of educability cannot be helped by books and schoolmasters. There is a certain amount of truth in this assertion, but it was contrary to the ideas then most favored in psychology. The cranioscopists maintained that they did not oppose Locke, "who argues against the innateness of ideas, and not the faculties or the capacities of receiving them."

"Who can be sure," asks Helvetius, "that differences of education do not produce the differences we find between minds; that men



are not like those trees of the same species whose seed, indestructible and exactly the same, never being sowed in exactly the same soil, or being exposed to precisely the same winds or the same sun or the same rain, must in developing necessarily assume an infinity of different forms?" Who can be sure? Gall and Spurzheim were. They thought they could point out differences in capacity. Fourier asserted that if France were but properly organized socially, it might produce thirty million Shakespeares or Newtons, or even men combining the best in the intellects of the poet and the scientist. We need not be phrenologists to see that the idea is absurd. It was Dr. Johnson who asserted that Newton might have become a Shakespeare if he had wished, for "he who can run fifty miles to the north can run fifty miles to the south."

But Gall never forgot that his little brothers and sisters had soon shown each his or her own bent. He was sure that the poetry-organ produces poetry, whereas an altogether different faculty gives the power of comparison. He believed that he had finally solved some problems which still trouble physiologists and psychologists. The argument about the innateness of general mental capacity and of special capacities of the intellect is as hot as it has ever been. Moreover, phrenology has not in the least advanced the solution.

Gall thought that he could find peculiarities of nervous structure to explain all innate differences. The men who possess reason, wit, and other qualities peculiar to mankind ought

to have brains most unlike those of the lower animals. Brutish men should be deficient in the protuberances indicative of the higher faculties. These should be altogether lacking in animals far down the scale and possibly rudimentary in apes and other more intelligent animals. In the final list of the faculties made by Gall, as in those of his pupils, certain qualities are stated to be "animal" and others purely human.

When the phrenologists flourished, there were still scientific writers who maintained that the moral sentiments reside in the nerves of the great viscera. Perhaps they thought that it would be irreligious to deny the literal truth of "bowels of compassion" and similar expressions found in the Bible. It seemed to many that the phrenological cause was that of science. Among those who ridiculed Gall's system were theologians and religious philosophers as well as scientists. I think that there is much more of lasting value in psycho-analysis than in phrenology, but it will help us to understand how the cranioscopic doctrines were received to compare the public attitude toward Freud's teachings ten years ago. On the one hand, were the ignorantists, the priests and the moralists, who argued that psycho-analysis was destructive of religion and good order. On the other side, equally hostile, were many who called themselves scientific psychologists and psychiatrists. Connected with phrenology, as now with psycho-analysis, were many charlatans, interested not in the pursuit of truth but rather in financial profit.

Phrenology represented the attempt to draw psychology out of the realm of metaphysical speculation and to found it upon physiological observations. In this way it was valuable, even though phrenology is now practically without scientific standing. Gall's skull measurements proved to be useful later. Few of his followers were as painstaking and as careful as he. As for psycho-analysis, it must eventually enter into the main streams of psychology and medicine. It has much to contribute but also a great deal to lose. Applied by unskillful operators, it is fully as ridiculous as phrenology.

We are justified in laughing at the phrenologists who examine heads at five dollars each, and still more at the possessors of these heads. It must be difficult to find brains underneath their craniums. But we cannot dispose of Gall with a smile. The man recognized a scientific difficulty still unsolved and he did his best to dispose of it. He worked with a delicate problem, and his solution was inaccurate. But this does not mean that Franz Joseph Gall was stupid or careless. Probably some men less competent and conscientious than he have stumbled upon great discoveries and been enrolled among the immortals. We must understand that Gall was more modest than the charlatans who succeeded him. It was not he who claimed to have discovered a new science of mind. Furthermore, if his followers had taken up his method of investigation, they would presently have discovered that his results were of no great value.

Gall discovered for himself that nerves disconnected from the brain are useless and that the growth of the brain is mental growth. He knew definitely that the philosophers who maintained that thinking is possible without the brain were mistaken. No doubt he underestimated the importance of the nervous system below the neck, the circulatory system, the ductless glands, and other parts of the human organism in the intellectual processes. Yet he was much closer to scientific truth than a great many of his opponents.

Gall declared that the brain is an aggregation of organs for feeling and thinking. In the words of George Combe, it is "a congeries of organs manifesting a plurality of functions." The phrenologists sought to find a musical convolution, a mathematical convolution, and the brain windings corresponding to other faculties.

The "science" failed when it became evident that Gall and his pupils had not studied enough skulls, or that they had simply disregarded those which appeared to contradict their findings. For some people who could not add two and two and did not possess four dollars to add together were found, after death, to have mathematical convolutions of extraordinary development. As for some great mathematicians, they were absolutely or comparatively deficient in mathematical "bumps." By way of reaction to phrenology, the essential unity of the brain was emphasized by the neurologists who flourished in the period between 1845 and 1861. It was in this latter

year that Paul Broca, a French surgeon, announced that he had found in the brain the seat of spoken language. Here seemed to be a return to phrenology, and many physiologists denied that Broca's convolution is actually the speech center. But incontrovertible proofs were soon brought forward. Individuals injured in that part of the brain lost the ability to speak. Moreover, it was discovered that the ability to interpret words communicated through the ear and the eye is localized in two brain centers. Other cerebral localization was presently established. But it differed widely from Gall's system. Curiously, we have double brains, but only one hemisphere is very important. Right-handed people lose the power to speak articulately if a center on the left hemisphere is damaged. For left-handed men and women, the right hemisphere is the one that matters.

The discovery of the localized importance of the brain convolutions has not brought back the old faculty psychology. No centers of volition and memory and affection have been established, and it appears that mathematical or poetic ability may depend upon a great many complex factors. The more we know about the uses of various parts of the brain, the more we are certain that Gall's teachings are misleading.

In the seventeenth and eighteenth centuries many mental philosophers sought to find a soul center, a spot in the brain or elsewhere which might be established as the seat of mental and moral life. Descartes tells us that

the pineal gland is the place. Boutekoe seats the soul in the *corpus callosum*. For these theorists, it was necessary to maintain that all the nerves come to the one spot.

But the phrenologists pointed to the fact that the liver never secretes urine, the kidney does not send out bile. By analogy, they argued, we must assume that there are various brain organs as well. The eyes see and the ears hear. Therefore the organ of generosity must be what makes men generous and the organ of vanity must make men vain. It is somewhat similar reasoning which derives war from a fighting instinct and the impulse to run away from a mad dog from the instinct of flight.

The brain is not composed of any one uniform substance. There is soft, pulpy, ash-colored matter, and there are also white, opaque fibers. Moreover, the phrenologists argued, their investigations into human and comparative anatomy had proved the specialization of the faculties. The differences between the intellectual capacity of the chicken and the scientist, they maintained, arise out of the varying brain development. The human being is mentally far superior to any lower animal simply because he has brain convolutions which no other sort of living being possesses.

If the brain were a unit, Combe asks, how would it be possible for individuals to excel in one field and to be inferior in another? A man may have strong arms and weak eyes, we all know, because the arms and the eyes are separate organs. If, then, a man is able to solve difficult problems in the calculus but is totally

unable to write sonnets to his sweetheart, this is because his mathematical faculty is excellent but his poetical faculty is weakly developed. This was the most persuasive argument that the phrenologists could put forth, for our ordinary reasoning proceeds from just such analogies as this.

Besides, qualities arise at different times. Some are nearly complete at birth, some appear at puberty, others are manifested only in full maturity. Therefore, said Gall and his followers, the brain is not one organ but many. A particular sort of mental effort may cause fatigue in a definite part of the head, they maintained. Long concentration brings a feeling of strain in the forehead, contended Spurzheim. No, rather in the back of the head, George Combe thought. For the phrenologists did not all subscribe to precisely the same system of doctrines. They did not all draw the same map of the skull.

In sleep and especially in dreaming, there seems to be a lack of unity of consciousness. We speak now of dual and multiple personality, and we divide the mind into "compartments" which we label consciousness, foreconsciousness, subconsciousness, and unconsciousness. The psycho-analytical system, which makes principal use of the conceptions of the conscious, the foreconscious, and the unconscious, is hardly concerned with cerebral anatomy and physiology. At any rate, we do not attempt to say that Dr. Jekyll's mental house is at one side of the head, whereas Mr. Hyde's mind is at the other. We know that intellectual activ-



ity is not the same while we are dreaming that it is while we are wide awake. Yet we are not forced to conclude with the phrenologists that the various mental "faculties" are products of separate organs. But our mental unity is not the same thing as the indivisible soul of which the philosophers used to speak. We know that consciousness departs when the body decays, just as the hole disappears when the doughnut is eaten. In other words, mind is considered a condition rather than a thing. The brain does not secrete thought as the glands secrete chemical substances, and any reasoning which proceeds from such an analogy is worthless.

Mental disease is usually not uniformly destructive. A lunatic or an idiot may have a good memory even if the higher intellectual processes are rendered worthless. Some faculties may even be developed to an extraordinary degree in madmen. Here again Gall and Spurzheim found a proof that the brain is a collection of organs. They speak of a chemist insane on every subject except chemistry and of people sane in all respects save one of a few.

It is possible to lose the memory for proper names and still to be able to remember other things. Therefore the reasoning of the phrenologists led them to the conclusion that memory is not the result of any one faculty. Charles Bonnet went to the length of contending that every fiber of the brain is a special organ.

Important in the phrenological system was the assumption that the size of an organ is indicative of its strength. A large muscle is



stronger than a small one, just as a large magnet can attract iron of heavier weight and from a greater distance than is the case with a small magnet. Those animals which have a keen sense of smell have large olfactory nerves. *Ergo*, a powerful faculty means a large organ indicated by a prominent protuberance upon the skull.

For Gall was interested not only in discovering the physiology of the brain but also in putting his knowledge to use. It was not sufficient for him to learn after a man had died that he was a musical genius or an unusually benevolent person. Such information, obviously, is of most value while the subject is still among the living. It was by no means enough that the preacher should be able to say, "Brethren and sisters, our departed brother Herman Bones was an unusually benevolent man. We might not have known it if the phrenologists had not cut up his brains and discovered an unusually large organ of benevolence. This must convince us that we ought not to judge people hastily." No, if Herman Bones is benevolent, we want to have that knowledge while it is still possible to approach him for the loan of five dollars.

Fortunately for the phrenologists, the shape of the skull is not very different from that of the brain. If the head of a young child is dissected, it becomes apparent to the student who is familiar with the anatomy of adult skulls that certain portions of the brain are comparatively undeveloped. The skull, too, shows the same lack of development in the same places. The

forehead, which is narrow and flat at birth, grows wider and more prominent from the age of three months to that of eight or ten years. Gall and Spurzheim denied that it is possible to change the shape of the skull artificially. Yet this is done among a number of savage peoples. Some of the later phrenologists thought that it ought to be done universally to develop the desirable mental organs and to weaken the undesirable ones.

Gall was enough of an anatomist to know that certain skull protuberances are foreign to the immediate functions. Some of his followers, being without much knowledge of anatomy or physiology, were capable of making very laughable mistakes. Many people have on the scalp indolent and encysted tumors which are called wens. These "bumps" are considerably more prominent than the ordinary protuberances, and an unskilled phrenologist might take a growth which was capable of being removed very easily for an indication of mental activity beneath.

To determine how the part of the brain behind the eyebrow was developed, Gall used to observe whether the eyeball was prominent or hidden, depressed, pushed sideward, inward, or outward. Otherwise these organs could only be examined after death. In general, the phrenologists believed, the growth of a brain organ could be judged from the degree of expansion at the surface, reflected in the expansion of the skull and the outer surface of the head.

Dr. Gall concerned himself with the technique of the work. He recommended that the oper-

ator should use the middle of the palm of the hand rather than the tips of the fingers in his examination. No man without a well-developed organ of tact should engage in phrenology, of course. In addition, Gall declared that it was necessary to develop a certain habitual skill in making the observations.

Even if the whole system were based on correct assumptions, most of the examinations by phrenologists would be rendered worthless because of the lack of measuring instruments. The most delicate of hands cannot easily measure in tenths of inches. Yet, when it is necessary to separate some thirty different areas, this becomes necessary. It is surely important to know if a swelling close to the boundary line belongs to cautiousness or to combativeness.

Sticking fingers into people's heads is not the pleasantest of tasks. This is one of the reasons why the charlatans of our time have comparatively little to do with phrenology. Physiognomy, the judging of character from the facial features, was cultivated by some of the first phrenologists, and it is a superstitious art which flourishes in our own time. Simply to be looked at or even to have the face measured is much less objectionable than the examination which phrenologists carry out.

In L. Hamilton McCormick's *Characterology* (Chicago, 1920), we find an estimate of Gall's system by a phrenologist and physiognomist of our own time. Mr. McCormick is anxious first of all to show that the criticisms directed against phrenology are not good ones. "It has

been wrongfully assumed by some writers," he says, "that as science has proved that certain centers of the brain refer to muscular control of the eyes, mouth, arms, legs, and various parts of the body, this disqualifies the phrenologists from claiming cerebral districts for the display of various groups of traits of character. The fact is that the functions of the brain are multiple and that different areas refer simultaneously to muscular control and to character." But the muscular control has been proved, the character areas merely assumed. They happen to be useful to charlatans and hence they are retained, albeit in revised form.

The two layers of the skull bones are not exactly parallel, and therefore it is impossible to tell the exact shape of the brain from the head. But the differences do not amount to more than an eighth of an inch, we are told, and hence they are of no importance. The fact that the phrenologists pay no heed to careful measurement makes it absolutely certain that their examinations are without value. If there were such a thing as a scientific system of phrenology, it would need to concern itself with exceedingly accurate measurements.

There are cavities in the skull, too, the frontal sinuses, which vary in size in different individuals. But some phrenological writers assure us that the size of the sinuses is also an important index to character. A few of the charlatans are quick to take advantage of every scientific discovery which can be injected into their pseudo-sciences to bolster them up with an air of respectability.

The dissection of the brain, Mr. McCormick concedes, does not give any indication of its division into separate compartments. This objection, taken by itself, is not fatal. Broca's convolution does not bear a label saying, "This is the seat of articulate speech." But Gall's divisions and those made by other phrenologists are not the result of acceptable scientific investigations.

The size of the skull does not indicate mental capacity, as we know. Men who wear large hats are not invariably wiser than those who wear small ones. Even brain weights are far from providing an accurate index. The brain of the historian Grote weighed 52 ounces, that of the physicist Helmholtz weighed 45, according to Professor John Marshall. The average brain weight of a European adult male is taken to be about 49.5 ounces. But Marshall found among nine hundred paupers thirteen brains weighing more than sixty ounces each. The heaviest brain he weighed was that of a mechanic. It was entirely healthy and it was of over seventy ounces. Pearson's analyses brought out the fact that the brains of Bohemians weigh considerably more than those of Englishmen.

The Peruvians of pre-Columbian times, who were a people of considerable attainments, had extremely small heads and brains. Some races characterized by unusually large heads appear to be particularly stupid. The historian Dollinger had a brain of only about three-quarters normal weight. Many an idiot has a large head. Gall was indeed forced to reach the

conclusion that results are not always trustworthy in the case of psychopathic individuals. He told his followers, too, that elderly people should not be examined. Their brains shrink back somewhat from the skull.

"The largest organs," says George Combe, "have, other things being equal, the greatest tendency to act; their activity is productive of the greatest pleasure; hence they are more frequently exercised than the small organs." As a result, they grow still larger and more potent. So far as the brain is concerned, this is not true. Memorizing does not increase the power of the memory, and certainly it does not make a larger bump in the head. It is true that the phrenologists were usually careful to insert the phrase "other things being equal" or its Latin equivalent "*ceteris paribus*" in the explanations of the significance of the size of organs, and to concede that quality and texture are also important. But, in practice, they paid little or no attention to the other factors, for the simple reason that they were altogether unable to learn anything about them in dealing with living subjects.

If the size of the skull as a whole provides so unsatisfactory an indication of the mental capacity of an individual, what shall we say of the attempt to measure various areas with the fingers? This is the great weakness of practical phrenology, even aside from the fact that what we know of brain localization contradicts Gall's assumptions.

In the writings of George Combe and other phrenologists, we find that the medieval four



temperaments are retained. Dr. P. M. Roget's article on physiology in the seventh edition of the *Encyclopedia Britannica*, reprinted in book form in Boston, 1842, deals with the temperaments but points out that they are of little scientific importance. The best medical thought, in the days of the phrenologists, had already discarded the humors and the temperaments depending upon them.

For Combe, though, it mattered a great deal if the individuals he was studying seemed to be of the lymphatic, the sanguine, the bilious, or the nervous type. Aside from the size of their various protuberances, their external appearance gave a clue to the investigator. The lymphatic temperament produces a round body, soft muscles, fair hair, pale skin, a weak brain, and, I suppose, a readiness to give heed to the phrenologists. The sanguine temperament causes moderate plumpness, pretty firm flesh, light hair, blue eyes, a ruddy complexion, and a strong brain. The bilious temperament is associated with black hair, dark skin, firm flesh, angular outlines, and an energetic brain. The nervous temperament is found in people with fine, thin hair, thin skin, small muscles, paleness, delicate health, an active brain and nervous system. Temperament and health were considered to modify the effects of size.

Considerable attention was paid to the form of the head. Some of the modern "characterologists" and "mentologists" make much of this. Our anthropologists, too, are still arguing about racial traits and the comparative excellence of brachycephalic and dolichocephalic—short and

long—heads. But the chauvinistic scientists who try to defend those qualities which they conceive to belong to their own race are upon a ground almost as treacherous as that into which phrenology has sunk. They argue from analogy and from insufficient observation, and they decline to consider the facts which do not happen to fit their hypotheses. The superstitions associated with science can be fully as dangerous and as ignoble as those connected with religion.

I find careful directions for measuring the cranium in *Descriptive Mentality from the Head, Face and Hand*, by Holmes W. Merton. That Mr. Merton's science can be depended upon is clear from the fact that he used to lecture to "Psychical Research Societies, Vegetarian, Hygienic, Health and Mental Healing Societies, Y. M. C. A.'s, Business Colleges, Technical Institutes, Fraternal Orders, Young Men's Clubs, Social Science Clubs, Ethical Societies, etc.," illustrating his lectures with oil paintings, 36x54 inches in size, of his own workmanship. Favorite subjects included "The Interrelations of Spirit and Matter," "Spiroplasm versus Protoplasm in Evolution," and "The Reincarnation and Spirit Birth."

It is evident that Mr. Merton's opinions are scientifically accurate, for he speaks of exact numbers. Also he changes the names of the temperaments, and deals with the "Mental Temperament" and the "Harmonic Temperament" as George Combe did with the traditional sanguine, bilious, nervous, and phlegmatic. We can be sure that the students at Technical Institutes and the good-hearted people at Ethical



Societies learned many wonderful things from Mr. Merton's pictures and from Mr. Merton's golden words.

But we have departed from the classical phrenologists. The last important attempt to vindicate them was made by Holländer at the beginning of the nineteenth century. He tried to bring Gall's ideas into line with more modern observations, but his arguments did not prove very convincing. Phrenology may have certain very small possibilities if it is ever worked out scientifically. But this has not been done, and it is certain that the diagnoses of character which a phrenologist can give are absolutely worthless.

In the height of phrenological success, there were attempts made to choose employes according to the relative development of the protuberances on their head. It was proposed also that candidates for Parliament and Congress should be required to undergo cranial examinations. For phrenology was not considered a mere hypothesis. It was a new and important science.

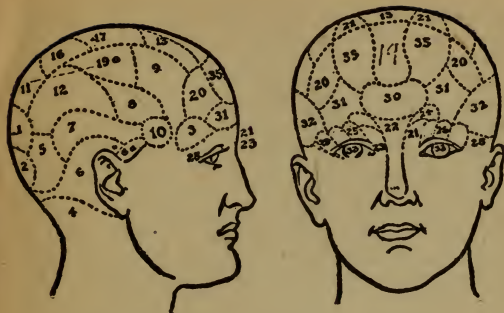
Combe wrote in 1825 that it was no longer necessary for him to insert controversial matter into his outline of phrenology, for "the opponents have quitted the field." Flushed with victory (or apparent victory), he declared that "it will be misfortune enough to the individuals who have distinguished themselves in the work of misrepresentation, to have their names handed down to posterity as the enemies of the greatest and most important discovery ever communicated to mankind." Archbishop Whately and many other influential men were among

the disciples of the phrenologists. There were in 1832 as many as twenty-nine phrenological societies in Great Britain. The Phrenological Journal of Edinburgh was published from 1823 to 1847. Phrenological articles appeared also in many medical and scientific magazines. The pseudo-science was no longer of great importance after the middle of the nineteenth century, but it lingered on a little longer in the United States. Our own country has always been friendly to all sorts of fads and systems of new wisdom. There was even a professor of phrenology in one of our universities.

Alfred Russell Wallace, to whom is given a certain amount of the credit for the formulation of the theory of organic evolution, was one of the nineteenth century scientists who lent a willing ear to the phrenologists. In his *Darwinism*, published in 1889, he still speaks of the mathematical faculty and the musical faculty pretty much as though they were separate products of the mind. The very word *faculty* must be abolished or used with the utmost caution by psychologists, for the reason that it suggests a neat division into compartments. The faculty of the will is not a thing altogether different from the faculty of memory. The will depends upon habit formations, and memory is nothing more than a group of habits.

## THE PHRENOLOGICAL SYSTEM

Let us consider the principal assumptions which Gall and his disciples made. First of all, the brain is the organ of the mind. This appears to be substantially true. However, we



THE PHRENOLOGICAL "ORGANS"

feel and think with our whole bodies. For instance, our particular modes of thinking depend in part upon the fact that we have eyes and ears. A man who has always been blind must reason somewhat differently than a man who knows the world by sight. Diderot thought that a man born without the power to see would naturally be an atheist. Probably there is no reason to suppose that our eyes more than our other organs make us religious, and we need not inquire into the special mental traits connected with each part of the body. The whole matter is too complex to be disposed of in a sentence or two.

Secondly, Gall assumed that the mental powers of men and women depend upon a number of independent faculties. There is only a small amount of truth here. Musical genius is not a matter of the development of a small

and specialized area in the head. It depends upon the whole physical organization, more especially that of the brain taken as a whole.

Moreover, the phrenologists believed that the faculties are innate. Poets are born with large poetic organs, they maintained. Mathematicians are born with the faculty of number well developed and certain to grow much faster than it does in the case of those persons to whom arithmetic and algebra are difficult. We do not understand very well the origin and the nature of individual differences. According to the extreme behavioristic position, human beings—with the exception of a few idiots—are literally born equal, and their mental growth depends almost exclusively upon their education. To say the least, this theory remains unproved. But it is certain that education, using the word in a wide sense, is responsible for a great deal which the phrenologists or some of the instinctivist psychologists of our time would refer to inborn capacity.

Not only do brain organs exist, according to the phrenologists, but their locations, with perhaps a few trifling exceptions, are known. Gall, Spurzheim, George Combe, and several other cranioscopists established a complete system in a few years. They mapped out the head with great confidence in their accuracy. We need not emphasize the differences of opinion among the phrenologists. These appear in the development of a true science as in that of a pseudo-science.

Gall and his pupils taught that the size of the particular organs, as manifested in the

amount of area over them on the head, offers a good indication of their quality. So many other factors enter in that size offers no reliable index at all. Is a woman with stout legs taken to be a good runner? Of course not. But even muscular development is frequently misleading. Medals are granted to those who win races, not to those who are considered to have good legs for running. We ought to keep this in mind, for the mind-testers are almost as reckless in their claims as the phrenologists were. The accuracy of intelligence tests is somewhat greater than that of phrenological examinations, but the attempt to surround intelligence quotient tables with an elaborate mathematical system is laughable.

If it ever becomes possible to evaluate a man in terms of a mathematical formula, we can be sure that this will be exceedingly complex. The greatest danger in the human pursuit of truth is the expectation that it can be found in a simple notion applicable to all experience. Popular scientific books and articles frequently foster this by deliberately avoiding difficulties and exceptions. There are professional men of science, too, who prefer to cherish their neat little systems even at the expense of accuracy.

The figures on page 33 of this little book show how the phrenologists mapped off the human head. The arrangement represents, indeed, one particular localization, and differs somewhat from the charts of Gall, Spurzheim, Fowler, and Wells. For our present purpose, though, one map is as good as another. Practically they are all worthless.

## THE PROPENSITIES

The propensities, according to Gall, are feelings common to mankind and the lower animals. The first one is amativeness, in the technical language of the phrenologists. We are more familiar with it under the name of the sexual instinct or the reproductive impulse. The organ of amativeness is said to be the cerebellum.

Dr. Gall was once called to treat a nymphomaniac widow. He found her neck large and hot between the ears. He wondered if this did not offer a proof that the cerebellum is the seat of the sexual craving and that its great development is reflected on the surface. Only animals with a nervous mass or a cerebellum copulate, he announced. The amoeba, which has no cerebellum, is denied this pleasure. Besides, Gall argued, the neck of the male is thicker than that of the female in all quadrupeds, and the males are sexually more ardent. Especially important for him were the instances of the bull, the ram, and the stallion. Vigorous pigeons, he claimed, are distinguished by the size of their necks. The development of the cerebellum is simultaneous with that of the genital organs at puberty, and early castration is said to prevent its development, as well as that of the beard and the voice organs.

Some surgeons of the eighteenth and nineteenth centuries said that neck wounds render their subjects impotent. Others claimed that



such injuries cause erotic excitement. To Gall it did not matter whether one of these theories is right or both, under varying circumstances. They point alike to some sort of connection between the cerebellum and the sexual desires.

Moderate amativeness is said to bring about pleasant relations between the sexes. The faculty inspires the poets and the dramatists who sing of love. Spurzheim advised people with large "bumps" of amativeness not to take the monastic vows. He was undoubtedly right so far as he went.

Amativeness is usually more developed in a warm or hot climate than in a cool or a cold one, we are told. This is true, but we cannot agree with George Combe that "the Greenlanders and other tribes of Esquimaux, for example, are remarkable for the strength of the feeling; and their skulls, of which the Phrenological Society possesses twelve specimens, indicate a corresponding development of the cerebellum."

The cerebellum is concerned in the coördination of movements, and it undoubtedly plays a part in cohabitation. But so do other regions of the brain. It seems to be certain that the cerebellum is by no means the organ of the sexual habits exclusively.

The second faculty is known as philoprogenitiveness. Love of children describes the quality in more familiar language. It is said, in Combe's language, to depend on "an original propensity," a "primitive tendency of the mind." McDougall calls it the parental instinct,

but of course he does not give it any definite habitation.

According to the Gallian phrenologists, the organ is situated immediately above the middle part of the cerebellum, and corresponds to the protuberance of the occiput. Not all the writers concerned with cranial "bumps" localize the faculties in precisely the same way, and some of them shift them about in the successive editions of their works. We need not consider the changes and contradictions, however, as though we were dealing with an important science not yet hardened into a definite system.

Dr. Gall discovered that the upper part of the occiput is usually larger in women than it is in men. Then, in cutting up the skulls of monkeys, he found that the corresponding region is extremely well developed. But what in the world, he thought, is the faculty shared by women and monkeys? Chattering? Curiosity? Love of bananas? These did not seem to fit. The authorities differ as to the manner in which the accepted teaching was reached. According to one account, Gall explained his difficulty in the course of a lecture, and a clergyman who was among his pupils suggested that monkeys and women both love children. According to another story, the great man worked out the solution without any such aid. The answer dawned upon him in the midst of a lecture, whereupon he immediately dismissed his class and went to work to verify it.

In childless women, according to the phrenologists, philoprogenitiveness may extend to cats and little dogs. It does not apply exclu-



sively to one's own offspring, and bachelors who are fond of children may possess the faculty. Combe assures us, with a slight touch of malice, that the work of Wordsworth and the other Lake Poets resembles a collection of lullabies because of their excessive philoprogenitiveness.

An overgrown organ of love for children may cause the pampering and spoiling of the young, we are told. But mothers who are deficient in the faculty are cruel to their offspring. Gall examined twenty-nine women who had been convicted of infanticide. Twenty-five of them had very small lumps or none at all in the philoprogenitiveness region. It goes without saying that nursemaids should be chosen for their possession of this faculty. Recommendations and neatness and apparent intelligence are unimportant, but a large "bump" saves the day.

The phrenologists declared that the nations which practice the exposure of infants are deficient in philoprogenitiveness. The negroes have large organs, and they never, never permit their children to die. Travelers say that the natives of India and Ceylon practice infanticide, but the travelers lie, for skulls of Hindus and Ceylonese in the possession of the Phrenological Society show large bumps of philoprogenitiveness. As for the cruel Caribs, it is lucky that they have the faculty well developed, for their race would quickly perish if they did not love their children. It appears, however, that the Caribs loved their offspring to such an extent that they picked choice

specimens, castrated them to make their flesh more tender, and then served them at festive banquets. Unfortunately for the phrenological theories, infanticide seems to be practiced to this very day in some remote regions of India and Ceylon. The Esquimaux, we are informed, have such a faculty of philoprogenitiveness that they suckle their infants until they are three or four years old.

Combe tells some curious stories about the diseases of this organ. A woman who had pain in the region of philoprogenitiveness imagined that some sort of calamity had befallen her children. She cried out wildly that they had been kidnapped, that they were in distress, and that they were all dead. Another woman believed that she was pregnant with six children. A crazy man insisted that he was with child of twins. Such is the consequence of too much philoprogenitiveness.

The third phrenological organ is disputed. Whereas Spurzheim insisted that it generates the faculty of inhabitiveness, George Combe was equally positive that it is the seat of concentrativeness. Gall admitted that he was unable to discover what function, if any, it performed.

Spurzheim observed the protuberance to be large in animals and men attached to particular localities. It is said to be well-developed in chamois, wild goats, and animals of all sorts which live mostly in high places. Gall suggested that it might possibly be allied in men to pride and haughtiness.

Combe conceded that a man possessed of fac-

ulty number three would be fond of his own home, though he might like to travel away from it to appreciate it all the more on his return. But he thought that it has a wider function. He tells us that it is the basis of connected thinking. People without concentrativeness, or possessing the quality only to a limited extent, are not able to attend to ideas for any length of time. Their minds wander.

Though the other lumps may suggest great intellectual power, a man without a prominent protuberance of concentrativeness is sure to have a cloudy mind. Or so George Combe says, at any rate. Without a good organ of concentrativeness, no energy in reasoning is possible. In case this faculty is strong and the other intellectual faculties are weak, the result is a tendency to debate matters stubbornly but stupidly. Concentrated style in a writer is the result of a large organ of concentrativeness.

Lunatics who are oblivious to the occurrences about them but who appear to be concentrated upon some single matter are said to have this organ diseased. And I suppose the absent-minded college professor has too large a bulge in this region.

According to George Combe, "the organ is large in the negroes and Scotch, full in Chinese, Germans, and Hindus, moderate in the ancient Greeks, and small in the Peruvians." But are we to conclude that the negroes, especially those who live in the middle of Africa, are really better able to concentrate than the ancient Greeks? Combe does not explain just what

conclusions he draws from these racial variations.

Rope dancers and equestrian performers are said to have the largest organs of concentrativeness. I suppose we might also include the small boy who stands for hours at the entrance to a fire station, waiting for the engines to go out.

The fourth faculty is that of adhesiveness. Gall knew a lady who was much attached to her friends and who had a protuberance of great prominence in the region to which this organ was later ascribed. Adhesiveness is described by Roget as the "propensity to attach ourselves to persons, animals, or other objects." Dogs are said to have it, especially faithful dogs. The organ was found to be large in a highwayman of Vienna who chose to die rather than to betray his confederates.

Persons in whom the faculty of adhesiveness is strong tend to embrace and to cling to objects. They shake hands vigorously and are reluctant to give up their grasp. The organ is usually larger in women than it is in men. Adhesiveness is the bond which keeps together husband and wife. It is the source of friendship, moral love, and society in general. Attachment is not always equivalent to generosity, for which reason the two organs are marked off separately upon the surface of the cranium.

The principal disease of adhesiveness is nostalgia, the homesickness which causes profound melancholy. Men and women who have large "bumps" of adhesiveness cannot bear to be

away long from the persons and even the inanimate objects to which they are attached.

"Two children in whom it is active," says Combe, "will put their arms around each other's necks, and lay their heads together, causing them to approach in the direction of the organ of adhesiveness, or assuming this attitude as nearly as possible." And a dog shows its attachment, we are told, by rubbing its head at the seat of this organ against its master's legs.

The fifth phrenological organ is that of combativeness. It is located behind the ear. Gall learned all about this faculty by giving money and wine to coachmen, porters, and servants, asking them to describe the characteristics of their fellows. Many of them were pointed out as especially quarrelsome. Others were called poltroons. The fighters were found to possess large protuberances in the combativeness region, while the peaceful individuals all seemed to be lacking in organ development there. A man who fought wild bulls and boars in a Vienna arena had ridges somewhat behind his ears. The university duelists were found to have large organs of combativeness.

The faculty is said to produce resistance and also aggression. Both moral and physical courage arise from it, as the phrenologists declare. Robert Bruce and other famous heroes had large organs. Persons of pronounced timidity were found by Gall to be uniformly lacking in the "bumps." If they possessed the protuberances, some mistake had been made, and they were certainly not cowards.

Combativeness, we are informed, is more im-

portant in the male than in the female. It is of service not only to the military commander but also to the lawyer, the politician, and the religious or social reformer. Lack of combativeness is not exactly the same as fear, which is a positive feeling.

Next to the organ of combativeness is the sixth on our list, that of destructiveness. The two faculties together make up what some psychologists call the fighting instinct or the instinct of pugnacity. Gall found the organ by comparing the skulls of carnivorous and graminivorous animals. As some phrenologists assert, though, the grass-eating creatures are not entirely without destructiveness. But it is manifested most strongly by lions, tigers, and other ferocious beasts.

Gall sometimes described the faculty as the "instinct of murder." But it was applied to all sorts of destructive tendencies. People fond of torturing animals were supposed to have strong organs of destructiveness. A well-developed faculty was also attributed to the hunter and the fisherman.

The faculty of destructiveness is not entirely a bad one, the phrenologists declared. It is necessary to kill, to destroy, and to chastise. Criminals must be executed, for instance. Abuses must be corrected. The faculty is manifested very clearly at public executions, we are told. Men and women who would not otherwise be suspected of cruelty used to take great delight in watching a legalized manslaughter.

Destructiveness makes for general energy, and it is often expressed in a craving for excite-

ment. It is larger in men than it is in women, and consequently stronger. It is said to be well-developed among the Caribs and to be almost entirely lacking among the Hindoos, who are careful not to kill any living thing.

Gall and Spurzheim could not discover any organ for the instinct to eat and to drink, but Combe claimed to have been more successful. The organ of alimentiveness or appetite is labelled 6a in the diagram. Gluttonous people are said to have very large organs of this sort.

Possibly the organ is connected with the sense of taste, it has been suggested. And possibly it is not. It is amusing to find Gall, Spurzheim, and George Combe sure of certain faculties, somewhat uncertain about others, as though they had succeeded in establishing the outlines of a science and filling in most of the details.

We are told of a woman who ate continually from five o'clock in the morning until noon, and then complained of hunger. Of course she had a huge bulge of alimentiveness. Not only that, but she suffered excruciating pain in that region. It was a sad case, especially since the phrenologists never found out very much about curing the disease of the brain organs. Still more melancholy is the story of the crazy woman who was once in a wealthy home where preparations were being made for a banquet. She ate the soup which had been prepared for twenty guests as well as twelve pounds of bread. Alimentiveness can be an exceedingly expensive faculty.

If the organ is very large, so the tale is



narrated, it pushes the eyeball up and forward. This may be observed in drinkers and excessive smokers. Smelling the breath is considered a more accurate test in these degenerate times. I suppose there ought to be a special organ for chewing, to explain the faculty of ruminativeness. Why do stenographers chew gum? I contend that the faculty of alimentiveness does not explain such action. There must be a faculty and an organ for teeth-gnashing, too.

Spurzheim and Gall were not sure about the organ of the faculty of vitativeness or love of life. Some people are more attached than others to this vale of tears and to the human form. Some there are content to become lilies and roses and onions at the last, or to join the celestial choir and help to make the symphony of the spheres. Combe quotes with approval the remark of Dr. Thomas Brown that the desire to remain among the living is "a most striking proof of that Being who, in giving to man duties which he has to continue for many years to discharge in a world which is preparatory to the nobler world that is afterward to receive him, has not left him to feel the place in which he is to perform the duties allotted to him as a place of barren and dreary exile." If it were not for Brown's happy thought, one might perhaps feel inclined to argue that the fear of death is a proof that the Christian doctrines do not penetrate very deeply. "Every man who fears death is an atheist at heart," it has been said.

We might almost speak of vitativeness as the faculty of atheism. Only unbelievers seem to

be no more afraid of death than the saintliest and most orthodox of Christians. I suppose there are really two distinct elements in vitality. The fear of death is not altogether the same thing as the lack of vital energy, although the two may be combined and frequently are. Some people cling to life, and they may be helped to recover after a difficult operation or a serious illness by their mental attitude. But the fear of death might operate in the contrary direction.

The organ of the love of life is probably situated in the base of the brain, according to Combe, and it is one of the few which cannot easily be observed from the outside. Therefore we can hardly tell in advance which people are likely to commit suicide.

The seventh organ—the number given corresponds in each case with that marked upon one of the heads shown in the middle pages of this book—is that of secretiveness. Gall found it in many people who enjoyed good credit in spite of being already heavily in debt. He had already observed its strong development in a schoolboy friend, who liked to make a mystery of even the most trivial matters. Another companion, with the same bulge, always seemed to be candid but was found after his death to have cheated his mother as well as a number of his acquaintances. A physician known to Gall, who was extremely fond of deceiving people, had a large protuberance of secretiveness. His head was broad at the temples.

Secretiveness is not only the weapon of knaves, the phrenologists were careful to point

out. Gall made many enemies by announcing that certain bulges indicate criminal or insane traits. His followers tried to mollify the good people who possessed them by explaining that they do not always stand for evil tendencies. Secretiveness may indicate a thief or a swindler, but it may also, in its large development, produce a diplomat or a statesman.

Secretiveness is plotting ability, we are told, and therefore it is the faculty which enables a novelist to bring together his hero and his heroine in the fatal embrace after they have been separated by the machinations of the villain. Here we have a play on words similar to some which operated in the development of the system of astrology. It is as though we should say that the faculty of sorrow makes people brew alcoholic beverages because *bier* and *beer* are pronounced in the same way. If the bases of phrenology were sound, it would be important to point out that the power to make literary plots is based on the faculty of constructiveness. No particular harm is done by attributing it to secretiveness, however.

The faculty is at the root of hypocrisy, duplicity, worldly wisdom, *savoir faire*, animal cunning, falsehood, and slyness, we are told. The general who is good at stratagems has a large and prominent bulge of secretiveness. Husbands who conceal their business affairs from their wives have the faculty strongly developed. The "bump" is conspicuous in most artists and actors. Secretiveness predisposes to lying, theft, and murder by means of poison. Individuals who are able to keep from showing

their great pain are well supplied with the faculty. It is strong in many madmen who take delight in deceiving their guards. It was of exceptional development in Sir Walter Scott, Dean Swift, and Robert Burns. It is small in negroes but large in the American Indians. As everybody knows, the colored people are open and candid, but the Indians are cunning. The slaves used to be considered thievish, though. Probably there were American gentlemen who thought that the phrenologists were mistaken about the small organs of secretiveness in the negroes.

The eighth organ is that of acquisitiveness or covetiveness. The faculty is about the same thing which some psychologists now call the hoarding instinct. It embraces the desire for money, real estate, animals, furniture, goods of all sorts. According to Kames, an innate sense of property teaches the infant the difference between that which is his and that which does not belong to him. This particular notion is no longer retained among the instincts. It is slowly built up, and it is possible to picture a communistic community in which it would not exist at all.

The extreme development of acquisitiveness produces the miser. Thieves, pickpockets, and sharpers are said to possess large organs of both secretiveness and acquisitiveness. Gall found among his deaf and dumb pupils several with pathologically enlarged organs of covetiveness. One of them continued to steal in spite of all the punishments which were inflicted upon him.

Gall once observed in a Berlin prison a man

with extremely large bulges of covetiveness and secretiveness. He told the warden that the man should be confined all his life, since it was impossible for him to conduct himself honestly. As we are told, the criminal resumed his thievish practices as soon as he was released. But this sort of thing is not so unusual that it can be taken as offering a proof of phrenology. Recidivism is the rule with persons who have been confined in prison.

Moderate and even large organs of acquisitiveness are not to be taken as indications of anti-social tendencies, we are told, unless the other indications are unfavorable. The faculty makes good business men and collectors.

The ninth organ is that of the faculty of constructiveness. It causes a propensity to build, a disposition for the mechanical arts. Engineers, architects, sculptors, and designers usually possess prominent organs. These are shown by irregular prominence in the temples, according to Combe.

The ancient Greeks, judged from the busts and pictorial representations, had strong constructiveness as a nation. The natives of New Holland are said to stand at the opposite extreme, having flat and narrow temples. A Viennese miller who showed considerable interest and skill in mechanics was found to have a large protuberance. Herschel, the astronomer, who built with his own hands the telescope which enabled him to make his important discoveries, is said to have been distinguished for his large organ of constructiveness.

We are told that the protuberances are large

"In Esquimaux, who show considerable constructive talent." It does not appear, though, that these people of the north are better mechanics than members of other races at a similar point of development. The houses and boats they build are primitive.

Michelangelo's bust is said to show strong constructiveness. The phrenologists understood that statues and pictures are not very accurate, but they made use of them whenever they seemed to help their argument. Architects are supposed to exhibit large and prominent protuberances. Engineering skill is caused by strong organs of constructiveness and weight.

## LOWER SENTIMENTS

What the metaphysicians and mental philosophers called emotions, the phrenologists designated as sentiments. The lower sentiments are those common to men and the lower animals. The tenth organ, that of the faculty of self-esteem, is said to produce one of these feelings.

Self-esteem is also known as self-love. Gall discovered the organ in a beggar who said that he had been too proud to work. People who are distinguished for their pride and vanity are said to have large protuberances in the region of self-love. An unusually small organ is supposed to indicate humility or perhaps lack of self-reliance. In children, strong self-esteem may be shown in pettishness and wilfulness of temper. Children with small organs are likely

to be obedient, unless some other mischievous faculties are unusually powerful.

The phrenologists tell us that self-love is greater in women than it is in men. The organ is larger, anyway. It does not appear that the cranioscopists paid particular heed to the possibility that the brains of women might be qualitatively different from those of men. In practice, it was necessary for the operators to consider size alone. The warmth of a particular spot might sometimes offer a clue, but the extension of the supposed organs was really the only thing considered.

Gall believed that the organ found in the lower animals which corresponds to self-esteem in human beings causes them to be fond of high places. Here again there is a playing with words. Vain men want to occupy positions which are figuratively high. Therefore animals with similar protuberances desire to live in the mountains. It is the sort of analogy which becomes ridiculous when put to the test of logic.

The eleventh organ is the seat of the faculty of love of approbation. This is considered to be distinct from the faculty of self-love. We are told that the organ is located in the upper posterior and lateral part of the head. Like self-esteem, it is said to be more powerful in women. It is evident that the founders of phrenology were all males.

The desire to be praised is sometimes carelessly assumed to proceed from the faculty of benevolence. Both the love of approbation and benevolence cause acts of generosity. The organs are entirely distinct, though. People who



have huge bulges of love of approbation like to have their talk and their dress particularly noticed. They sometimes practice minor eccentricities. Why a learned Greek name was not given to this organ, I cannot see. Perhaps we should call it philotimetiveness. It is the innate desire for honor and glory, and Napoleon should have had the proper protuberances.

A madwoman who imagined herself to be the queen of France was found to have a large organ of philotimetiveness. I suppose all the Messiahs and Jehovahs and other paranoiac individuals in insane asylums have prominent organs. If not, the organs are diseased even though they are small. For this is the type of reasoning we find in the controversial writings of the phrenologists.

The twelfth organ is that of the sentiment of cautiousness. Gall studied two gentlemen of Vienna who seemed unable ever to make up their minds. Coming up behind them unobserved, he saw that they both had heads extremely large on the upper posterior part of both sides. His investigations in comparative anatomy showed him that the stag, the otter, the mole, the chamois, and other animals which are distinguished by caution and timidity have skulls similarly formed.

With the large development of cautiousness go uncertainty, irresolution, unquietness, anxiety, fear, melancholy, hypochondriasis, and a tendency to suicide. Or the phrenologists tell us so, anyway. One of Gall's subjects exhibiting this faculty was a prelate who could never quite make up his mind that the sentence he

had just spoken was complete. He hesitated, added a qualifying clause, stopped, began his sentence over again, and overwhelmed his speech with reservations and doubts.

The essential quality of cautiousness is fear, we are told. In moderate amounts, it leads to prudence and proper deliberation. When the organ is diseased, it may bring about suicide.

## SUPERIOR SENTIMENTS

The superior sentiments are confined to human beings, or they are found in the lower animals in a somewhat different form. One of these is the faculty belonging to the thirteenth organ, known in human beings as benevolence. It is judged from the form of the superior middle part of the forehead. When the organ of benevolence is small, the forehead is low and retreating. The phrenologists say so, not I.

Benevolence leads to kindness, compassion, and, in its highest forms, to Christian charity or love. Gall tells us that the portraits show little benevolence in Tiberius, Caligula, Caracalla, Nero, Catherine de' Medici, Danton, or Robespierre. They demonstrate that the organ was large in Trajan, Marcus Aurelius, and Henry of Navarre.

The diseased sentiment of benevolence may have consequences sad to reflect upon. A lunatic with a huge bulge on his forehead gave away all his clothes and tripped about the

street in the garb of our father Adam. As for the young women who give away their—well, what our Victorian ancestors would have called their honor—without any hope of monetary reward, I suppose they have lumps upon their foreheads, too. But this is a matter which requires additional investigation before any valid conclusion can be reached. For Gall tells us that the growth of amativeness to unusual size is sufficient to explain this sort of generosity.

In the middle of the coronal region is the fourteenth organ, that of veneration or theosophy. The faculty corresponds to what psychologists used to speak of as the religious instinct. In the words of P. M. Roget, "Dr. Gall has observed in churches, that those who prayed with the greatest fervor were bald; and that their heads very much elevated."

I do not know about the elevation of the head, but my hair is gradually thinning out, and I suppose I shall soon be writing a life of Christ. Three *I*'s and a *my* in one sentence—this is undoubted proof of a large protuberance of self-esteem, according to the phrenologists.

To return to baldness in general, though: it is now supposed to characterize the tired business men who sit in the first row at girl shows. I suppose Gall associated lack of hair with religion because of the tonsure, the shaven corona worn by priests in the Roman Catholic Church.

Veneration is the faculty not only of the

worship of God, but also of filial piety. And it may cause superstition to arise among the poor benighted heathen who have eaten up all the missionaries sent to them without giving them a chance to preach. The head of Jesus is usually represented with a large crown. Women are more likely than men to have large "bumps" there.

Spurzheim discovered the fifteenth organ, that of conscientiousness. The faculty brings about the ability to distinguish between right and wrong. Here we have that moral instinct which some psychologists and theologians have been reluctant to give up. We must keep in mind the fact that each phrenological faculty is supposed to represent an innate capacity. Spurzheim thought that there ought to be an organ of justice as well as one of conscience, but he was unable to lay his hands on it.

I have observed that regretful memories make me turn my toes up. If only there were still phrenologists working in the laboratories, this suggestion might be enough to make them find a connection between the organ of conscientiousness and the feet.

It is perhaps worth pointing out that the moral ideas are certainly not innate. The more intelligent theologians who concern themselves with the building of Christian character are forced to recognize that the infant is amoral. Our notions of right and wrong depend entirely upon the time and the place in which we live.

The sixteenth organ is the seat of the sentiment of firmness. The possession of this faculty to a marked extent intensifies the other char-

acteristics, as we are told. It sometimes goes under the name of determinativeness. Spurzheim and Gall assure us that the top of the brain is well developed in men and women of firm and constant character. This organ lies between love of approbation and hope.

When the faculty is strong, the resulting characteristics are constancy, perseverance, infatuation, stubbornness, and disobedience. But it is very useful if the other organs bring about a good disposition. This is what kept Dr. Gall working until he made his brilliant discoveries.

The lack of normal growth in the organ of firmness causes fickleness and inconstancy. We might expect that the faculty of concentrativeness would be sufficient to explain the qualities attributed to firmness. Gall, however, believed the third organ to be the seat of inhabitiveness alone, and his successors were somewhat less systematic.

Hope is housed in the seventeenth organ. When this is extremely developed, the individual remains hopeful despite all his failures. No unpleasant experiences are capable of destroying his confidence. The faculty is housed next to that of veneration, and the two are related. Religion seemed to the phrenologists to depend not only upon an instinctive worship of God and a clinging to right conduct but also upon the hope of a future life. Kant taught that although we cannot prove the truth of Christianity rationally, we are intuitively aware of immortality as of God and freedom. It is not

clear to what extent Gall was a Kantian, but here we have faith represented as one of the higher sentiments. Yet hope may lead to all sort of credulity, we are told. Perhaps the protuberances of this organ were extraordinarily developed in the days when phrenology flourished. But, alas, we have scientific superstitions of our own.

The eighteenth organ is the seat of the faculty of wonder. People who see visions, who discover haunted houses, and who talk to their attending spirits, have large organs of wonder. According to Gall's classification, this trait is included in the faculty of ideality or poetry. The protuberances are said to be clearly marked in the busts of Joan of Arc, Swedenborg, and Cromwell, all of whom claimed to have spoken to God and his attending angels.

The nineteenth area represents the organ and the sentiment of wonder. Gall found it large in a friend who wrote extempore verses, and he concluded that the organ is what produces poetry. It is said to be prominent in portraits and busts of Euripides, Sophocles, Virgil, Ovid, Horace, Boccaccio, Aretino, Tasso, Milton, Pope, Voltaire, and a long list of other poets. Their heads are said to have been enlarged above the temples, in an arched direction. Here, then, is what brings about inspiration. It is also what causes headaches to lovers trying to write sonnets to their sweethearts, no doubt.

Wit or mirthfulness is the faculty arising out of the twentieth organ. Rabelais, Cervantes, Boileau, Racine, Swift, Sterne, and Voltaire are given as examples of persons with strongly de-

veloped sentiments of mirthfulness. These men are said to have had the superior external parts of the forehead elevated. Jest, mockery, ridicule, and irony, we are told, arise out of this faculty. But the organ of wit is not necessarily the source of laughter, Combe remarks. People sometimes laugh without mirth.

It is unnecessary for us to analyze each one of the phrenological faculties and to show how most of them are very complex instead of being simple and unified. The sense of humor, it may be remarked in passing, depends upon the whole constitution of the mind. To use the language of the cranioscopists, destructiveness, secretiveness, love of approbation, wonder, wit, imitation, language, comparison, and causality are some of the faculties involved. But if we consider these interrelations long enough, we must conclude that the very conception of separate faculties is misleading.

The twenty-first organ is that of the sentiment of imitation. The faculty is proportionately more developed in children than it is in adults. Strong powers of imitation or mimicry are supposed to be shown either by bulges on both sides of the nose or by considerable elevation of a semi-globular form at the superior part of the forehead. The reader may seek these signs in the actors and actresses of his acquaintance. The same faculty is supposed to give dramatic power to writers, and we are told that the organ is clearly marked in the busts of Shakespeare and Sir Walter Scott.



## PERCEPTIVE FACULTIES

The perceptive faculties are said to procure knowledge of external objects, their physical qualities and various relations. One of these is individuality, seated in the twenty-second organ. We might call it the quality of recognizing and remembering objects. Memory is not a special function in the Gallian phrenology, but is supposed to arise out of several different organs. That distinguished *savant*, Mr. Merton, localizes it above the eyes, and most recent phrenological charlatans give it a special dwelling-place. Gall observed, though, that an individual may have a good memory for certain sorts of things and a poor one for others.

Individuality is supposed to be shown in the middle of the lower part of the forehead. Gall called the faculty educability, but his followers reduced its importance by ascribing to it merely the capacity for noticing and keeping in mind details. Spurzheim and Combe say that it is well developed in persons of superficial brilliance.

The twenty-third organ; we are told, is the seat of the faculty of form. Men and women remember names because of their possession of the organ of individuality, but persons and outlines through their faculty of form. It is the geometric quality, and it is essential to painters and to writers who are primarily descriptive.

The protuberances are said to have been large in Montaigne and Sterne.

Size is supposed to be housed in the twenty-fourth organ and weight in the twenty-fifth. Persons in whom these faculties are strong can estimate the size and the weight of objects readily. So the phrenologists assure us, at least. People who can draw perfect circles without the use of an instrument are supposed to have vigorous organs of size. If I were a phrenologist, I should rather attribute this quality to form. The frontal sinus, alas, throws a difficulty in the way of observing the organ of size. The chief disease of weight is dizziness. Individuals deficient in the perceptive faculty of weight easily become drunken or seasick.

The twenty-sixth organ is that of the faculty of color. It is very weak in those who are color blind, and it is usually strong in artists. Gall found a blind man with a prominent color protuberance, and he was convinced that he could tell colors apart through his sense of touch. Color is said to be powerful among the Chinese, and to be stronger in women than it is in men.

Locality is seated in the twenty-seventh organ, as the tale is told. This is the memory for places. Birds and many animals which possess it are able to return home from great distances. It is said to be important for travelers, geographers, navigators, astronomers, and landscape-painters. The busts of Newton, Cook, and Columbus show prominent bulges of locality the phrenologists tell us.

The twenty-eighth organ is the home of the faculty of number. This is what makes the

mathematician and the rapid calculator. The arithmetical and algebraic forms of mathematics depend almost entirely upon the number faculty, but geometry and the calculus arise in part out of form and size.

Order is the faculty secreted by the twenty-ninth division of the brain. This makes for arrangement of objects in a neat system when it is strong. The organ is said to be very conspicuous in the mask of Benjamin Franklin's head. Regularity of habit depends upon the faculty of order.

The thirtieth organ is that of the faculty of eventuality. When well-developed, it gives fullness to the middle of the forehead. The faculty is that of the active verb, and of the conception of action in general. It is important in narrative writers. George Combe discovered the importance of the organ, and found it strong in Le Sage, Defoe and Scott.

The thirty-first organ, that of the faculty of time, and the thirty-second, which produces the faculty of tune, are both essential to musicians. People who can tell the approximate time without looking at a clock or who can dance precisely or scan verses are said to have good organs of time. A good area of tune is shown in the development of the lateral part of the forehead. It makes for musical memory and the appreciation of small differences in pitch. Also it causes the voice to be soft and gentle. It is said to be stronger in Italians and Germans than it is in negroes, Spaniards, Frenchmen and Englishmen.

The faculty of language is supposed to be

housed in the thirty-third organ. Its extreme development makes the eyes large and prominent. It makes for good verbal memory. The lower eyelid may appear to be swollen in persons who are fond of philology. Also it may be swollen in any individual who does too much reading, I take it. A vigorous flow of words is the result of a good organ of language.

### REFLECTIVE FACULTIES

The thirty-fourth organ houses the reflective faculty of comparison. It was first recognized in a scholar of vigorous mind with whom Gall was acquainted. It is said to produce the qualities of difference, analogy, similitude, and identity. It is important for poets, because it produces figures of speech. Abstract and general ideas arise out of comparison. Franklin, Hume and Henry of Navarre are named as persons who possessed the prominent ridges on the upper part of the forehead supposed to show the possession of this faculty.

The faculty of causality is said to inhabit the thirty-fifth organ. This is also manifested outwardly above the eyes. "It has long been a manner of general observation," says George Combe, "that men possessing a profound and comprehensive intellect, such as Socrates, Bacon, and Galileo, have the upper part of the forehead greatly developed." In prominent instances of causality, the forehead develops in a hemispherical form. Ability in metaphysics,

economics, and various abstract branches of knowledge is said to come from good organs of causality.

This is the phrenological system which seemed so important to its founders and which is so utterly lifeless now. It were almost an act of supererogation to warn my readers that phrenologists can do nothing in the way of judging their character and their special fitness. But if they would have me end my discourse with a moral, here is one that will do for lack of better: Not all is scientific gold that glitters.

